[Title of Document] SPECIFICATION

[Title of the Invention] TRANSPARENT LAMINATE, METHOD FOR PRODUCING THE SAME, AND PLASMA DISPLAY PANEL

[Scope of Claim for a Patent]

[Claim 1] A transparent laminate comprising a transparent substrate, n thin-film units (n= 3 or 4) laminated unit by unit successively on a surface of said substrate, and a high-refractive-index transparent thin film formed on a surface of laminate of said n thin-film units, each of said n thin-film units consisting of a high-refractive-index thin film and a silver transparent conductor thin film, wherein the standard deviation of visible light transmittance in a wave range of from 450 to 650 nm is not larger than 5 %.

[Claim 2] A transparent laminate according to Claim 1, wherein each of said silver transparent conductor thin films has an approximately constant thickness in a range of from 5 to 20 nm, each of the high-refractive-index transparent thin film located on the surface of said transparent substrate and the high-refractive-index transparent thin film located in an outermost layer has a thickness in a range of 20 to 50 nm, and each of the other high-refractive-index transparent thin films located in an intermediate region between said high-refractive-index transparent thin film located on the surface of said transparent substrate and said high-refractive-index transparent thin film located as the

outermost layer has a thickness in a range of 40 to 100 nm.

[Claim 3] A transparent laminate according to Claim 1 or 2, wherein each of said silver transparent conductor thin films has an approximately constant thickness in a range of from 5 to 20 nm, each of the high-refractive-index transparent thin film located on the surface of said transparent substrate and the high-refractive-index transparent thin film located in an outermost layer has a thickness $(5/2)\times(1\pm0.15)$ times as large as the thickness of each of said silver transparent conductor thin films, and each of the other high-refractive-index transparent thin films located in an intermediate region between said high-refractive-index transparent thin film located on the surface of said transparent substrate and said high-refractive-index transparent thin film located as the outermost layer has a thickness $5\times(1\pm0.15)$ times as large as the thickness of each of said silver transparent conductor thin films.

[Claim 4] A transparent laminate according to any one of Claims 1 to 3, further comprising a low-refractive-index transparent thin film formed on said surface of said transparent substrate, said low-refractive-index transparent thin film having a refractive index n_L in a range of from 1.3 to 1.6 and having a thickness of $550\ \text{nm}\times(1/4n_L)\times(1\pm0.15)$.

[Claim 5] A transparent laminate according to Claim 4, further comprising a low-refractive-index transparent thin

film formed on a surface of said high-refractive-index transparent thin film located as the outermost layer, said low-refractive-index transparent thin film having a refractive index n_L in a range of from 1.3 to 1.6 and having a thickness of $550\ nm \times (1/2n_L) \times (1 \pm 0.15)$.

[Claim 6] A transparent laminate according to Claim 4, further comprising any one of an anti-reflection film, an anti-mirroring film and a low-reflection anti-mirroring film stuck onto said surface of said high-refractive-index transparent thin film located as the outermost layer, through a transparent adhesive layer.

[Claim 7] A method for producing a transparent laminate according to any one of Claims 1 through 6, wherein when said silver transparent conductor thin films are formed by a vacuum dry process, the temperature T (K) of said transparent substrate at the time of the formation of said films is set to be in a range $340 \leqq T \leqq 410$.

[Claim 8] A method for producing a transparent laminate according to any one of Claims 1 through 6, wherein when said silver transparent conductor thin films are formed by a vacuum dry process, the temperature T (K) of said transparent substrate at the time of the formation of said films is set to be in a range $340 \leqq T \leqq 390$, and the film-forming rate R (nm/sec) of said silver transparent conductor thin films is set to be $R = (1/40) \times (T-300) \pm 0.5$.

[Claim 9] A plasma display panel filter using a transparent laminate according to any one of Claims 1 through 6.

[Detailed Description of the Invention]

[0001]

[Technical Field pertinent to the Invention]

The present invention relates to a transparent laminate, a method for producing the transparent laminate, and a plasma display panel (hereinafter referred to as "PDP") filter using the transparent laminate.

[0002]

[Background Art]

Nowadays in the society where information orientation is advancing remarkably, performance required of a display to be used as a terminal for displaying an image is diversified greatly. Especially, a great deal of attention has been paid to a PDP as a novel display succeeding a CRT and a liquid-crystal display because it is easy to increase the size of the PDP while reducing the thickness of the PDP. The PDP has already come onto the market.

[0003]

In the PDP, electric discharge is produced in rare gas enclosed in the panel, especially, in gas containing neon as a main component. R, G and B fluorescent materials applied onto cells of the panel are made to emit fluorescence by vacuum ultraviolet rays generated at the electric discharge. In this